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HSIEH, PING Y				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/580,497

**Applicant(s)**

ROSENFELD, JOSI

**Examiner**

PING Y. HSIEH

**Art Unit**

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 and 20-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 20-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB008)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

Claims 1-17 and 20-26 are pending.

Claims 18 and 19 are cancelled.

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 7-10, 13, 16, 17, 20-22 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Goren et al. (U.S. PATENT NO. 7,069,025).

-Regarding claims 1, 16 and 17, Goren et al. disclose a positioning method for a radio system **(as disclosed in Fig. 15 and 16)**, the method comprising: receiving signals at a unit of the system **(receive data signal as disclosed in step 1510, Fig. 15 and further disclosed in col. 22 lines 9 – 11)**; applying at least one test on the received signals to select a processing operation on the signals **(as disclosed in step 1575, Fig. 15 and further disclosed in col. 22 lines 31 - 35)**, the operation being one of the following: a correlation processing operation **(evaluate correlation function using buffered data signal as disclosed in step 1570, Fig. 165 and further disclosed in col. 22**

lines 22 – 30), a leading edge processing operation (**as disclosed in step 1585, Fig. 15 and further disclosed in col. 22 lines 36 – 40**); and then effecting the operation selected (**see Fig. 15 steps 1570 - 1590**).

-Regarding claim 2, Goren et al. further disclose the test applied comprises determining whether the signal level of the received signal is above a threshold value (**determining whether the correlation function quality sufficient is above a threshold value as disclosed in step 1575, Fig. 15; if yes, estimate TOA as disclosed in step 1580, Fig. 15**).

-Regarding claim 3, Goren et al. further disclose if the level of the received signal is below the threshold value, the correlation processing operation is selected (**if the correlation function quality is not sufficient, evaluate correlation function using buffered data signal as disclosed in step 1575 and 1570, Fig. 15**).

-Regarding claims 7 and 26, Goren et al. further disclose repeating the test application and operation steps at predetermined intervals (**repeat the test application and operation steps at the intervals of receiving data signals as disclosed in Fig. 6 and Fig. 15**).

-Regarding claim 8, Goren et al. further disclose coherently superposing received pulses before the test application step (**evaluate correlation function 1570 as disclosed in Fig. 15**).

-Regarding claim 9, Goren et al. further disclose convolution of a pulse with a bump function (**leading edge detection 1585, Fig. 15**).

-Regarding claim 10, Goren et al. further disclose if the signal level is below the signal level threshold, extending the receiving time period for the signal before the next/successive test application(s) **(when the correlation function quality is not sufficient, evaluate correlation function and test correlation function quality sufficiency again as disclosed in Fig. 15).**

-Regarding claim 13, Goren et al. further disclose effecting the leading edge processing operation after selection with no intermediate testing or processing **(as disclosed in fig. 15).**

-Regarding claim 20, Goren et al. disclose a positioning apparatus for a radio system **(as disclosed in Fig. 15 and 16 and further disclosed in col. 22 lines 1 – 5)**, the apparatus comprising: means to receive signals at a unit of the system **(receiver 110, Fig. 1; receive data signal as disclosed in step 1510, Fig. 15 and further disclosed in col. 22 lines 9 – 11)**; means to apply at least one test on the received signals to select a processing operation on the signals **(TOA estimation device 200, Fig. 2; as disclosed in step 1575, Fig. 15 and further disclosed in col. 22 lines 31 - 35)** which is one of the following: a correlation processing operation **(evaluate correlation function using buffered data signal as disclosed in step 1570, Fig. 165 and further disclosed in col. 22 lines 22 – 30)**, a leading edge processing operation **(as disclosed in step 1585, Fig. 15 and further disclosed in col. 22 lines 36 – 40)**; and means to effect the operation selected **(see Fig. 15 steps 1570 - 1590).**

-Regarding claim 21, Goren et al. further disclose means to determine whether the signal level of the received signal is above a threshold value **(determining whether the correlation function quality sufficient is above a threshold value as disclosed in step 1575, Fig. 15; if yes, estimate TOA as disclosed in step 1580, Fig. 15).**

-Regarding claim 22, Goren et al. further disclose means to select the correlation processing operation if the level of the received signal is below the threshold value **(if the correlation function quality is not sufficient, evaluate correlation function using buffered data signal as disclosed in step 1575 and 1570, Fig. 15).**

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 4-6 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goren et al. (U.S. PATENT NO. 7,069,025) in view of Diener et al. (U.S. PATENT NO. 7,006,838).

-Regarding claims 4 and 23, Goren et al. teach all the limitation as claimed in claims 1 and 2. However, Goren et al. fail to disclose testing the leading edge gradient is above a threshold.

Diener et al. disclose a signal detector 520 and a pulse detector coupled to the peak detector that detects from the peak information pulses that meet the configured criteria as disclosed in col. 8 lines 41 - 46.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method as disclosed by Goren et al. to include the step of detecting the peak information pulses that meet the configured criteria as disclosed by Diener et al. One is motivated as such in order to provide accuracy for identifying location using leading edge operation.

-Regarding claims 5 and 24, the combination further discloses if the leading edge gradient is below the gradient threshold value, the leading edge processing operation is selected **(Diener et al., knowing the type of the signal to be located after detecting from the peak information pulses that meet the configured criteria, can be useful in deciding on what type of signaling process to use in order to obtain TDOA measurements to locate the source of the signal as disclosed in col. 8 lines 41 - 55; and Goren et al., estimate TOA step 1580 as disclosed in Fig. 15).**

-Regarding claims 6 and 25, the combination further discloses if the leading edge gradient is above the gradient threshold value, the correlation processing operation is selected **(Diener et al., knowing the type of the signal to be located after detecting from the peak information pulses that meet the configured criteria, can be useful in deciding on what type of signaling process to use in order to obtain TDOA measurements to locate the source of the signal as disclosed in col. 8 lines 41 - 55; and Goren et al., correlation function quality sufficient step 1575 as disclosed in Fig. 15).**

6. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goren et al. (U.S. PATENT NO. 7,069,025) in view of Rudowicz et al. (U.S. PATENT NO. 6,052,561).

-Regarding claims 11 and 12, Goren et al. disclose all the limitations as claimed in claim 1. However, Goren et al. fail to specifically disclose before testing whether the leading edge gradient is above a threshold value, reducing the next transmit period and reducing the time period for the leading edge test for operation in a power-saving mode.

Rudowicz et al. disclose before testing whether the leading edge gradient is above a threshold value, reducing the next transmit period and reducing the time period for the leading edge test for operation in a power-saving mode **(see col. 9 line 59-col. 10 line 18).**

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the position method of Goren et al. to include the



features as disclosed by Rudowicz et al. One is motivated as such in order to reduce power consumption.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goren et al. (U.S. PATENT NO. 7,069,025).

-Regarding claim 14, Goren et al. disclose all the limitations as claimed in claim 14. Although Goren et al. does not specifically disclose measuring the gradient using the formula:

$$i = \frac{Cdv}{Dt} ,$$

the examiner takes official notice that the formula was well known in the art and would have been obvious to one of ordinary skills in the art at the time of the invention to use it for measuring gradient.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goren et al. (U.S. PATENT NO. 7,069,025) in view of Sanderford, Jr. (U.S. PATENT NO. 5,742,635).

-Regarding claim 15, Goren et al. disclose all the limitations as claimed in claim 15. However, Goren et al. fail to specifically disclose the leading edge processing operation comprises differentiating the received signal voltage or peak and locating the zero-crossing.

Sanderford, Jr. discloses the leading edge processing operation comprises differentiating the received signal voltage or peak and locating the zero-crossing **(as disclosed in col. 2 lines 17-42)**.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Goren et al. to include the process as disclosed by Sanderford, Jr. One is motivated as such in order to improve the accuracy of a time-of-flight time stamp.

***Response to Arguments***

9. Applicant's arguments filed 2/28/08 have been fully considered but they are not persuasive.

a. In pages 7 and 8 of the remarks, regarding claim 1, applicant argues there is no test at all is applied by Goren in step 1570 of fig. 15. The examiner agrees and has modified the rejection. Applicant further argues the test step 1575 is not applied on the received and does not select between performing a correlation processing operation on the signal, or a leading edge processing operation on the signal. The examiner respectfully disagrees. Goren indeed discloses receiving data signal as disclosed in step 1510, fig. 15 and evaluating correlation function using the buffered data signal obtained from the receive data signal as disclosed in fig. 15. Goren further discloses selecting a leading edge processing operation or the evaluate correlation function according to the correlation function quality sufficiency as disclosed in steps 1570, 1575 and 1580.

b. In page 8 of the remarks, regarding claim 2, 3 and 7, applicant argues Goren does not determine whether the level of the received signal is above or below a threshold value and then take the recited actions based upon that result. The examiner respectfully disagrees. Goren indeed discloses determine whether

the level of the received signal is above or below a threshold (is the correlation function quality obtained from the received signal sufficient or not) and then take the recited actions based upon that result (if yes, estimate TOA; if not, evaluate correlation function).

c. In pages 8 and 9 of the remarks, regarding claim 20, applicant argues Goren does not disclose applying at least one test on received signals to select a processing operation on the signals from among the following operation: a correlation processing operation, and a leading edge processing operation. The examiner respectfully disagrees. Goren indeed discloses receiving data signal as disclosed in step 1510, fig. 15 and evaluating correlation function using the buffered data signal obtained from the receive data signal as disclosed in fig. 15. Goren further discloses selecting a leading edge processing operation or the evaluate correlation function according to the correlation function quality sufficiency as disclosed in steps 1570, 1575 and 1580.

d. In page 9 of the remarks, regarding claims 21, 22 and 26, applicant argues Goren does not determine whether the level of the received signal is below the threshold value and then takes the recited actions based upon that result. The examiner respectfully disagrees. Goren indeed discloses determine whether the level of the received signal is above or below a threshold (is the correlation function quality obtained from the received signal sufficient or not) and then take the recited actions based upon that result (if yes, estimate TOA; if not, evaluate correlation function).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PING Y. HSIEH whose telephone number is (571)270-3011. The examiner can normally be reached on Monday-Thursday (alternate Fridays) 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lana Le can be reached on 571-272-7891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. Y. H./  
Examiner, Art Unit 2618

/Lana N. Le/  
Acting SPE of Art Unit 2618